

Overview of Fresno Reservoir

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Outline

- Reservoir and water trends
- Stocking history
- Angler trends
 - Angling pressure
 - Creel surveys
 - Tournament history
- Habitat enhancement
- Sampling protocols/past studies
- Discussion/Questions



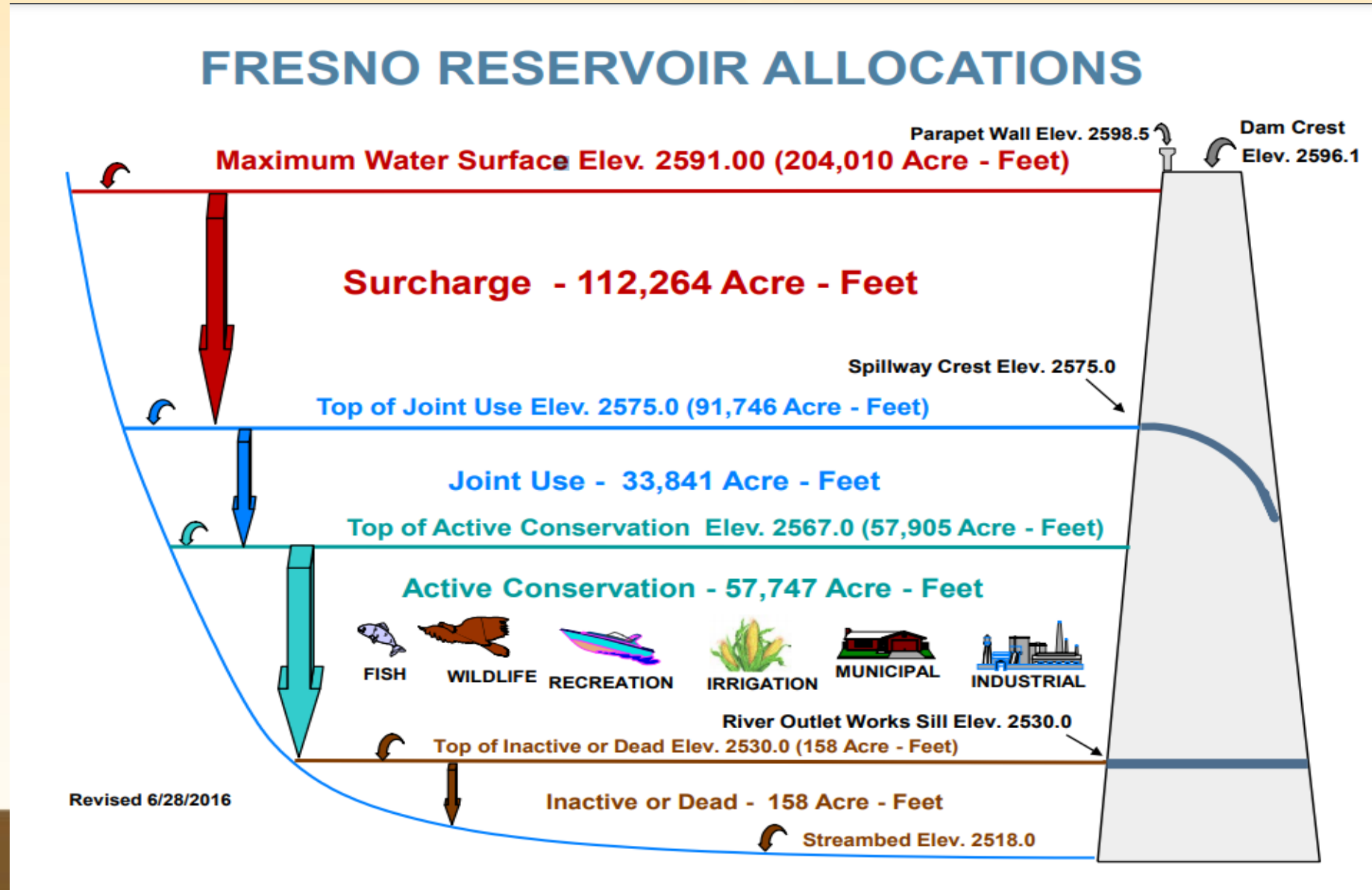
Fresno Water Allocations and Beneficial Use

Primary

- Irrigation (~130,000 acres)
- Flood control
- Municipal
 - Havre
 - Chinook
 - Harlem
 - Hill County Rural Water

Secondary

- Recreation (fish/wildlife)
- Hydropower (explored)



Fresno Water Levels



Sedimentation Survey (BOR- Ferrari (2010))

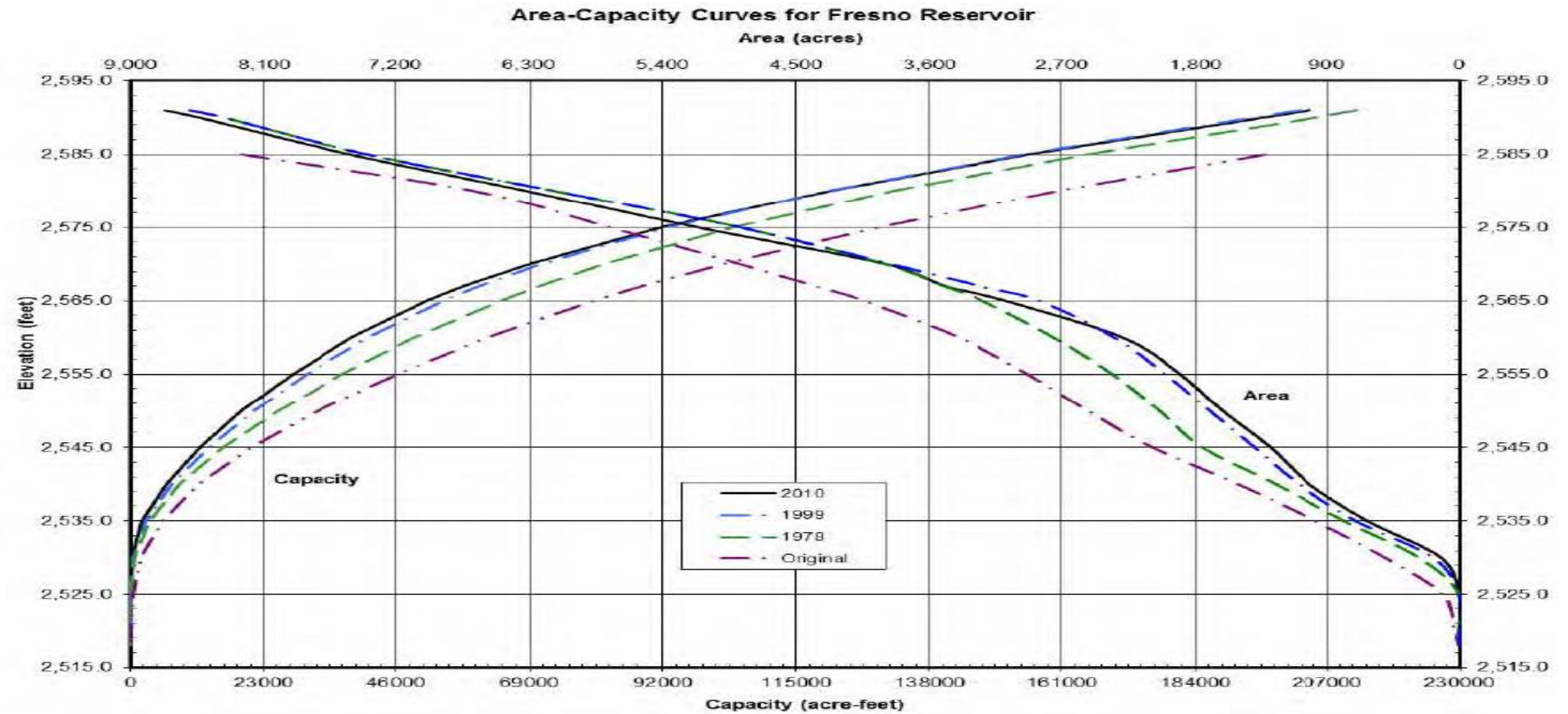
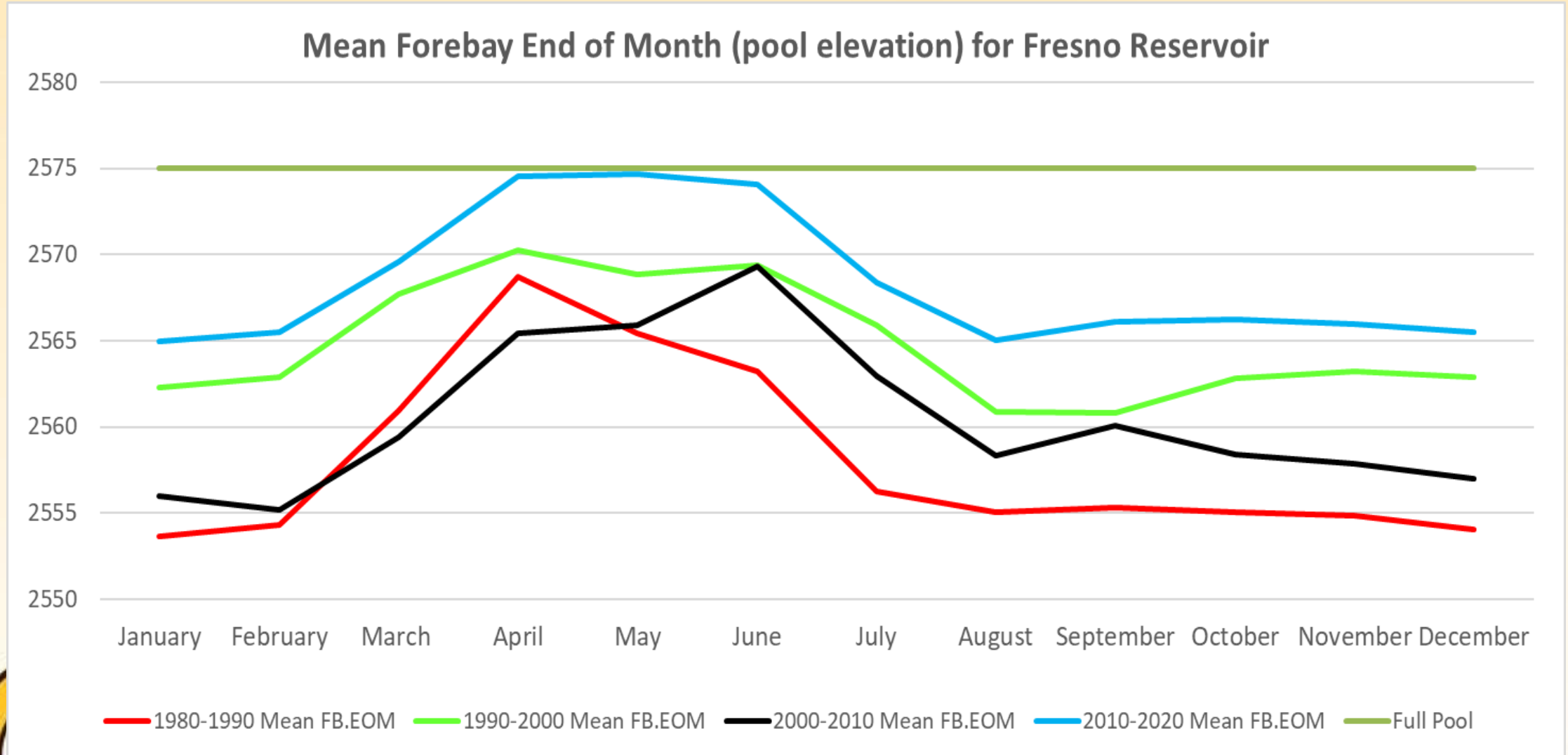


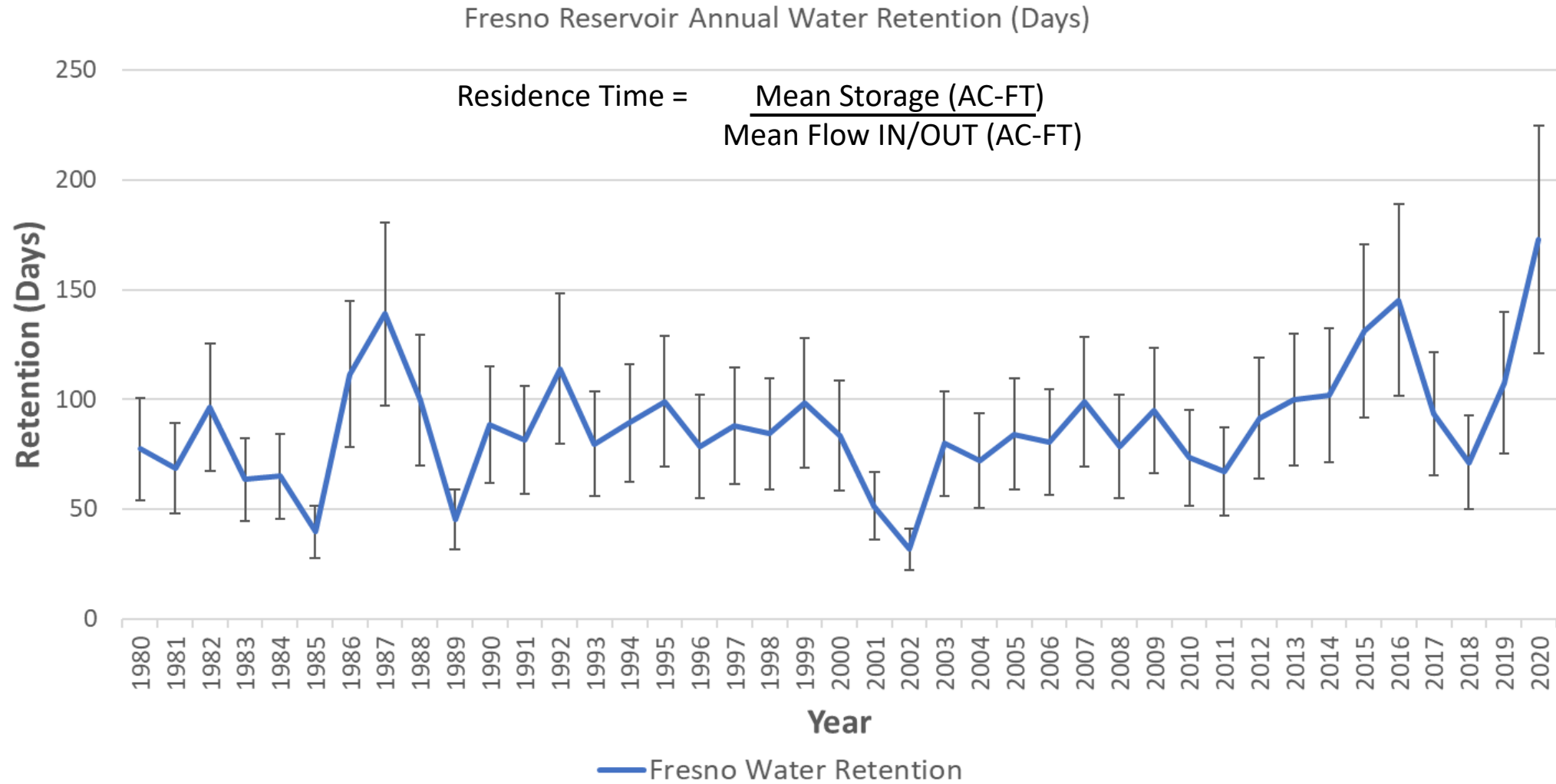
Figure 24 - Fresno Reservoir area and capacity plots.

	26. DATE OF SURVEY	27. PER. YRS	28. PER. YRS	29. TYPE OF SURVEY	30. NO. OF RANGES OR INTERVALS	31. SURFACE AREA, AC.	32. CAPACITY ACRE - FEET	33. C/I RATIO AF/AF
S	11/39			Contour (D)	5-ft	5,757	129,090 ⁷	0.50
U	6/78	38.7	38.7	Range (D)	223	4,878	103,980 ⁷	0.40
V	5/99	20.9	59.5	Contour (D)	5-ft	4,878	92,880 ⁷	0.36
E	6/10	11.1	70.6	Contour (D)	2-ft	5,163 ⁸	91,746 ⁸	0.35

Fresno Pool Elevation Trends by Decade (1980-2020)



Water Retention/Residence Time (1980-2020)



Water Level Variability



Recent High Water Events (2011, 2014 and 2018)



2017/2020 Drawdown on Fresno Reservoir



2017/2020 Drawdown on Fresno Reservoir



2017/2020 Drawdown on Fresno Reservoir



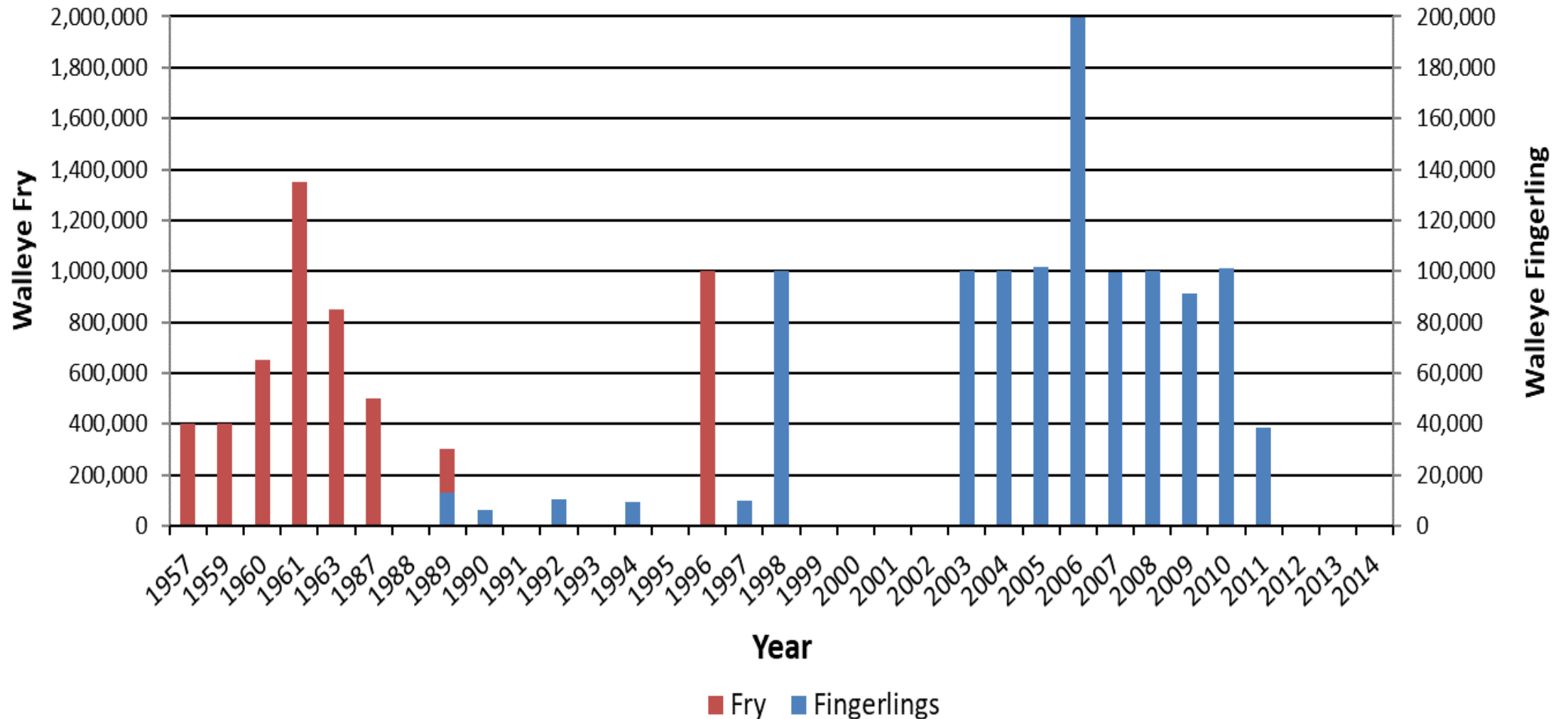
2017/2020 Drawdown on Fresno Reservoir



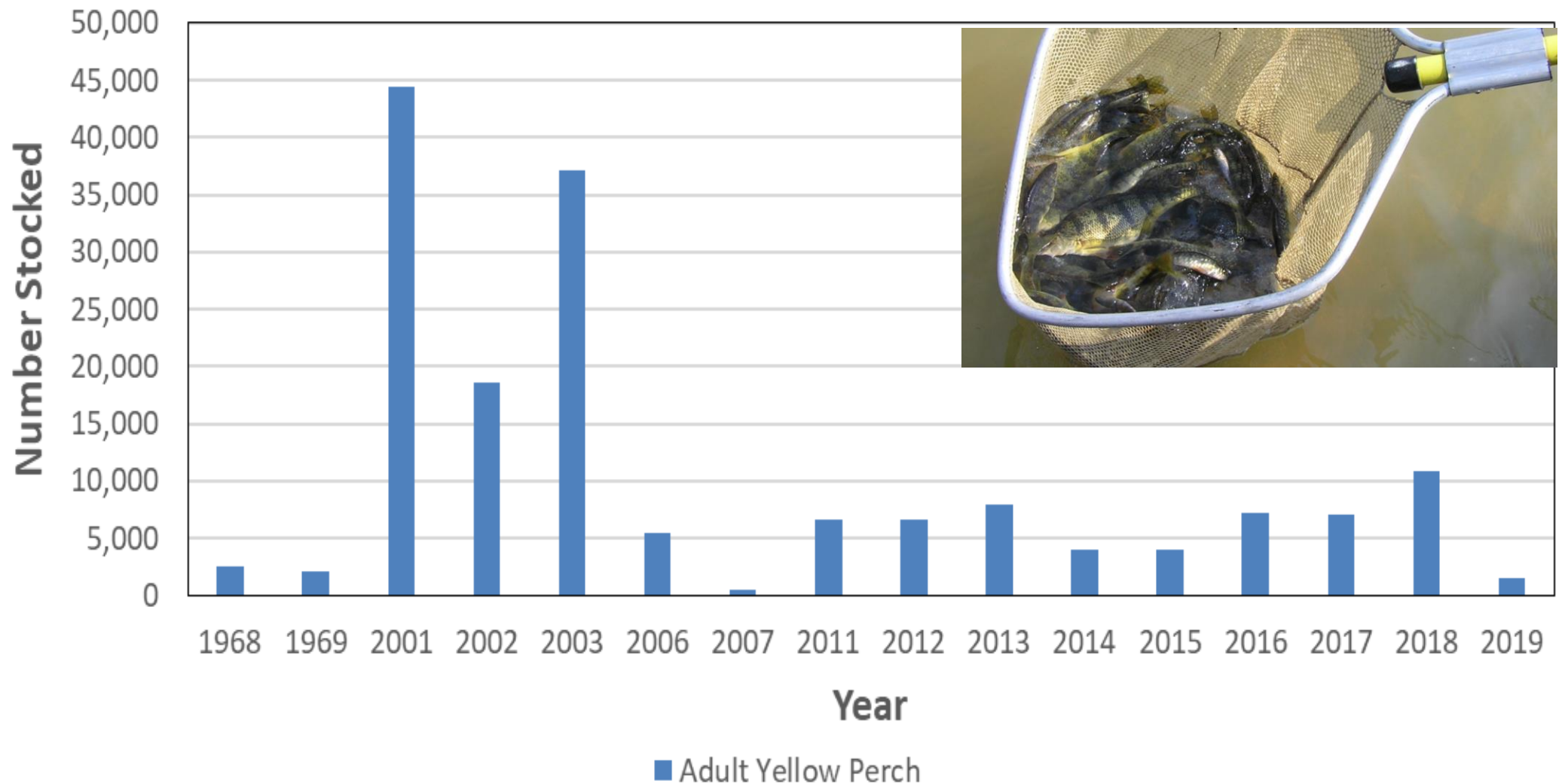
Historic Stocking at Fresno



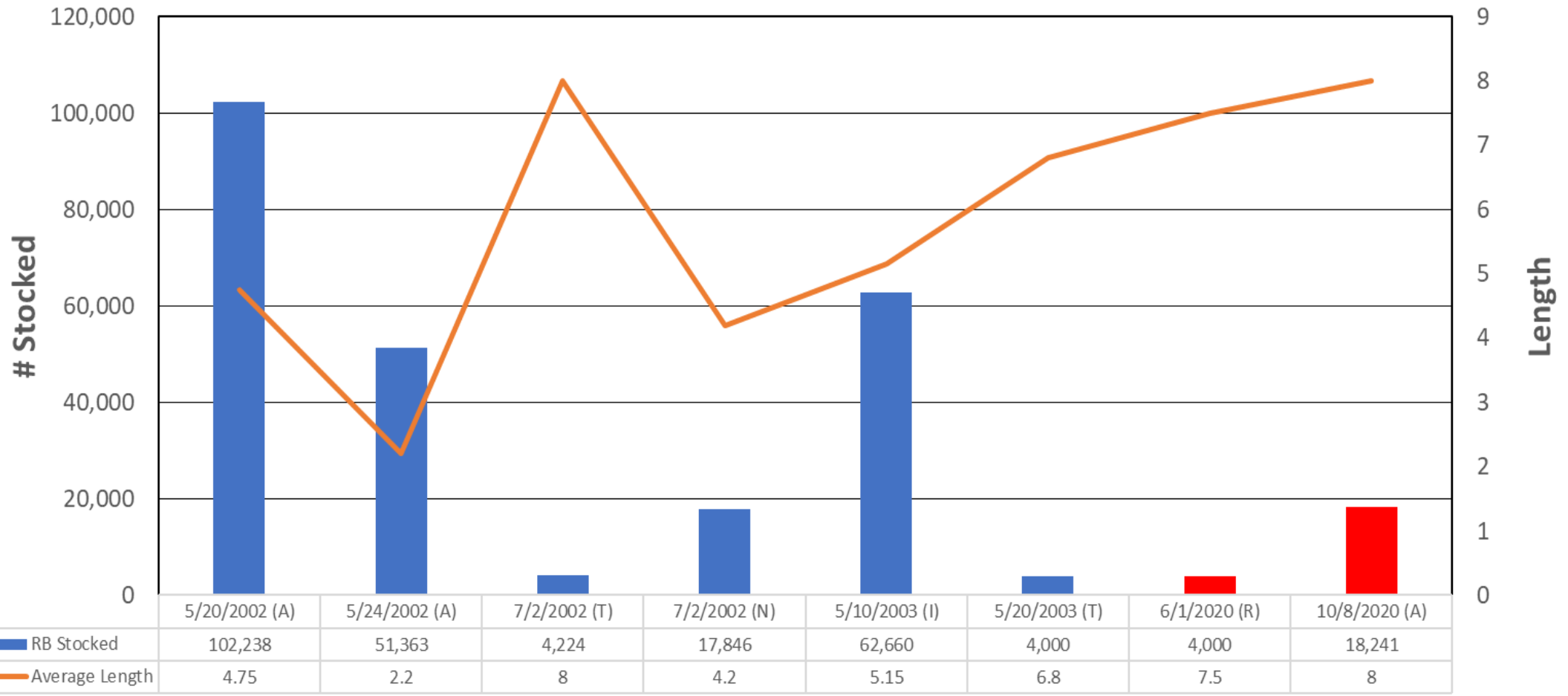
Historic Walleye Stocking



Supplemental Stocking of Pre-Spawn Yellow Perch into Fresno



Historic Rainbow Trout Stocking in Fresno Reservoir



Other Stocking Efforts

- Brown trout (1949)
- Kokanee (1960's and 2002)
- Largemouth bass (1940)
- Smallmouth bass (1976 and 1982)
- Crappie (1991-1992)
- Emerald shiner (1967-1968)
- Spottail shiner (1984)
- White Sucker (1997-2010)



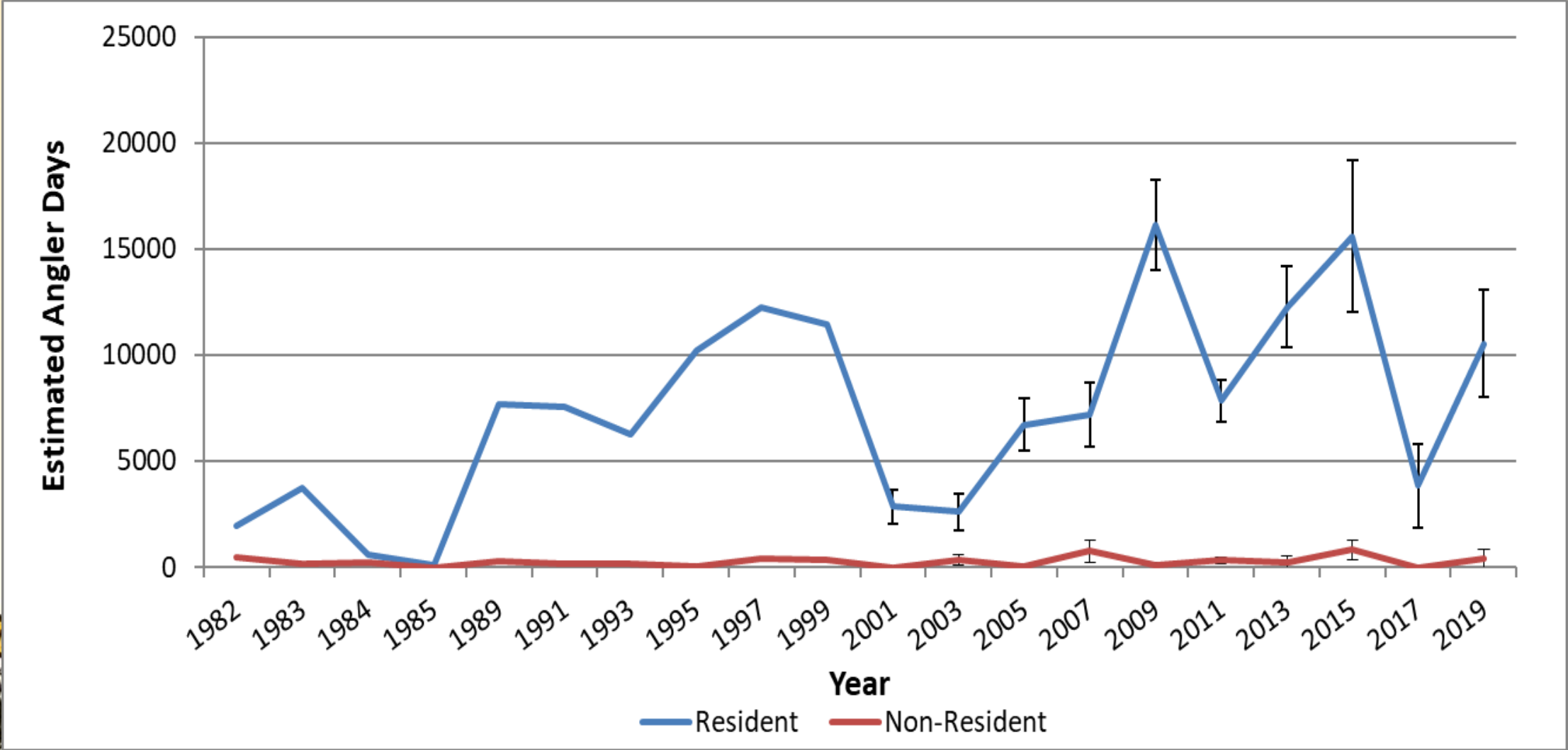
Milk River Species



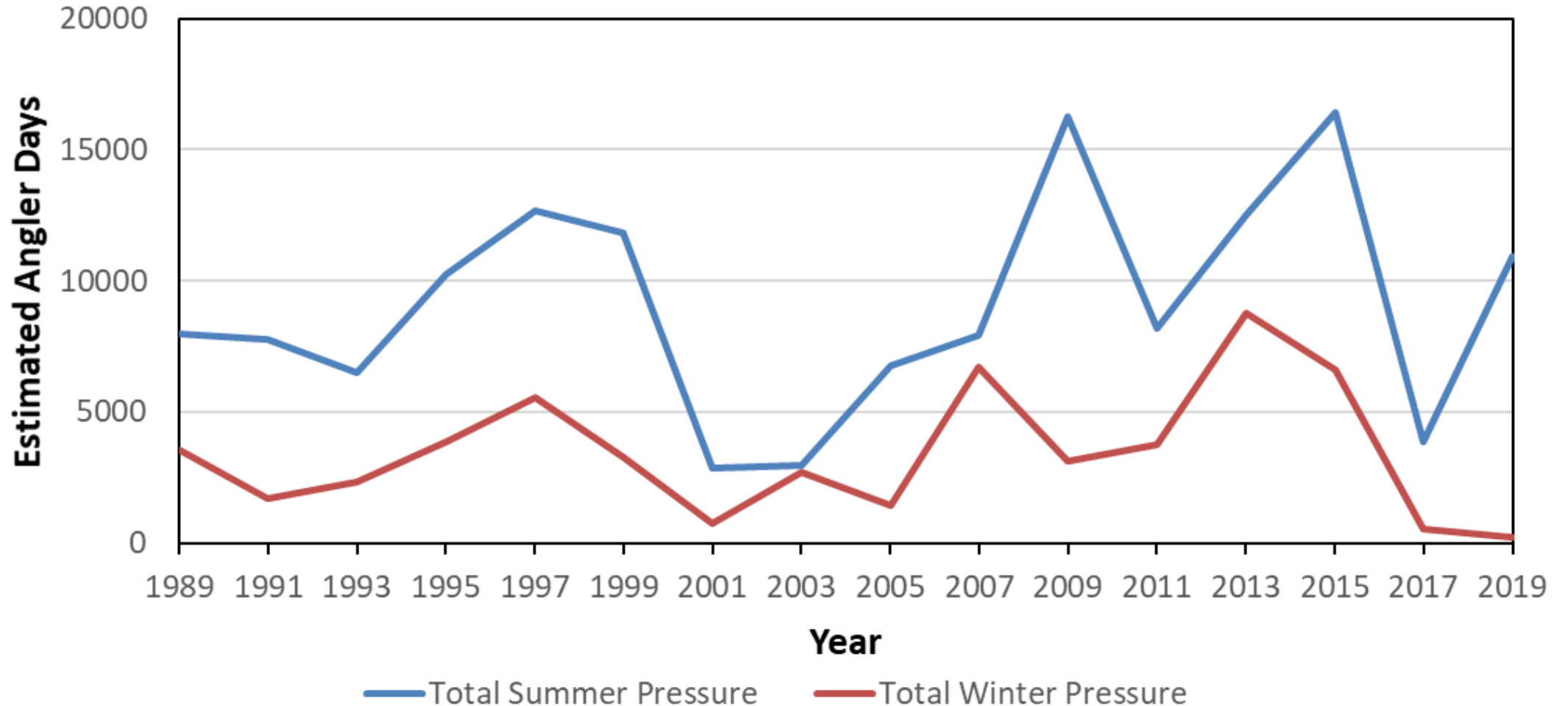
Fresno Angling Pressure and Creel Surveys



Fresno Estimated Summer Angling Pressure (May-Sept.) 1982-2019



Fresno Estimated Summer (May-Sept.) and Winter (Oct.-April) Angling Pressure 1989-2019



Comparison of Past Creel Surveys at Fresno

Category	1990	1996	2015
Overall Catch Rate (WE/hr) May-September	0.5	0.41	0.75
Avg. Length of WE Harvested	14.8	14.2	15.38
Avg. Weight of WE Harvested (lbs.)	1.07	0.98	1.10
Percent Harvested	52%	53%	32%
Overall Catch Rate (NP/hr) May-September	0.2	0.41	0.1
Avg. Length of NP Harvested	19.8	20.4	22.6
Avg. Weight of NP Harvested (lbs.)	1.69	1.82	2.42
Percent Harvested	29%	19%	11%
Overall Catch Rate (YP/hr) May-September	N/A	N/A	0.01
Avg. Length of YP Harvested	10.8	N/A	10.5
Avg. Weight of YP Harvested (lbs.)	0.68	N/A	0.61
Percent Harvested	N/A	N/A	42%
Average Pool Elevation	2565.9	2566.1	2568.5



Tournament History

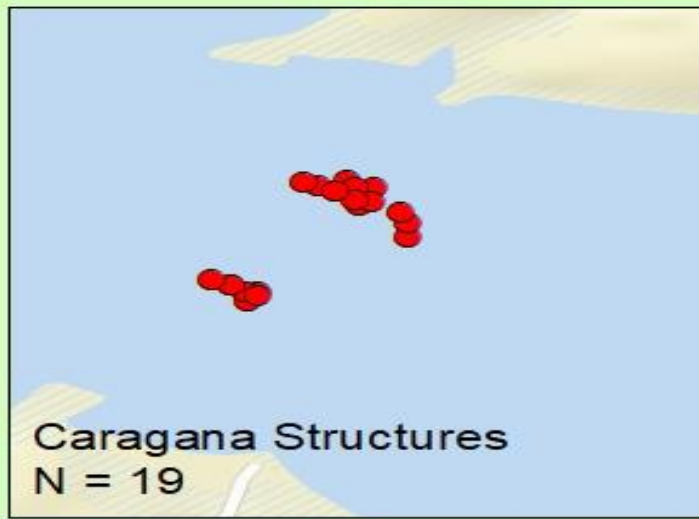
- Fresno Challenge
 - Historically held in May or June
 - Up to 100 two-person teams
 - Live release format
- Ice Fishing Derby
 - Held in late January or February
 - 50-100 contestants
 - Live release format



Habitat Enhancement with FCWU

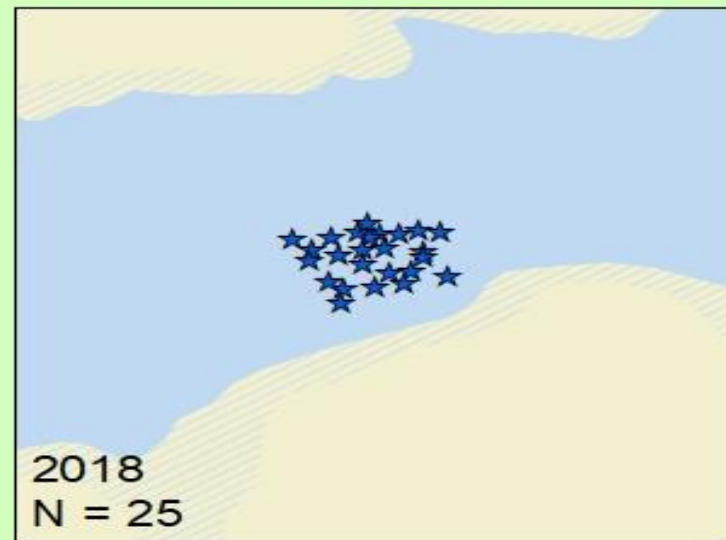
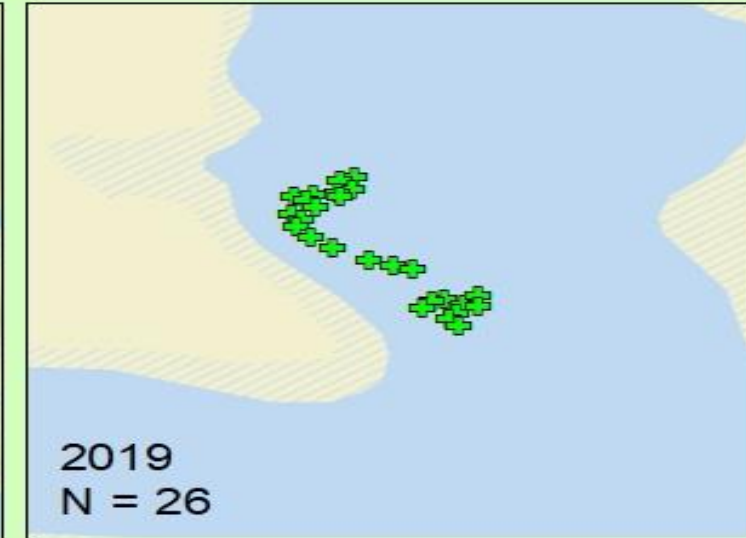
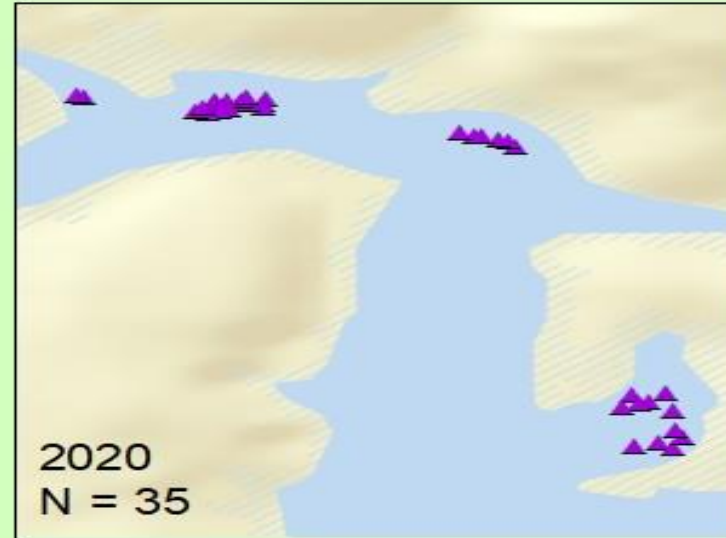
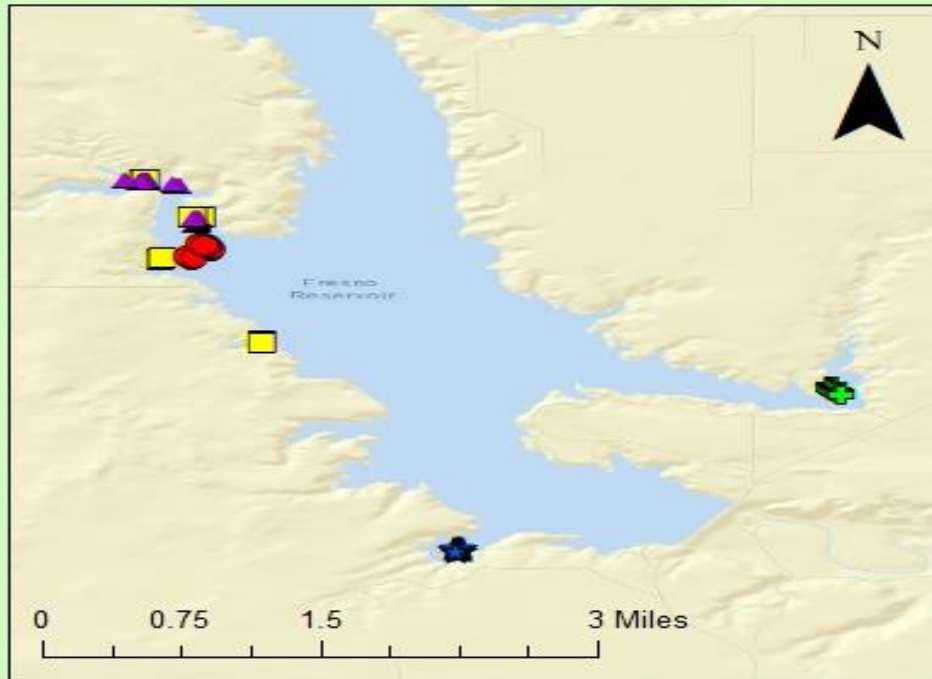


Fresno Habitat Project



Legend

- ▲ 2020 Trees
- ★ 2018 Trees
- Caraganas
- ✚ 2019 Trees
- 2017 Trees



Standardized Sampling

- Young-of-year populations monitored at 12 fixed sites in early August (1968)
 - Seine- use a 75- x 9-foot x ¼ inch square mesh beach seine
 - Captured fish are sorted by species (game fish are classified as adults or juveniles) and counted.



Standardized Sampling

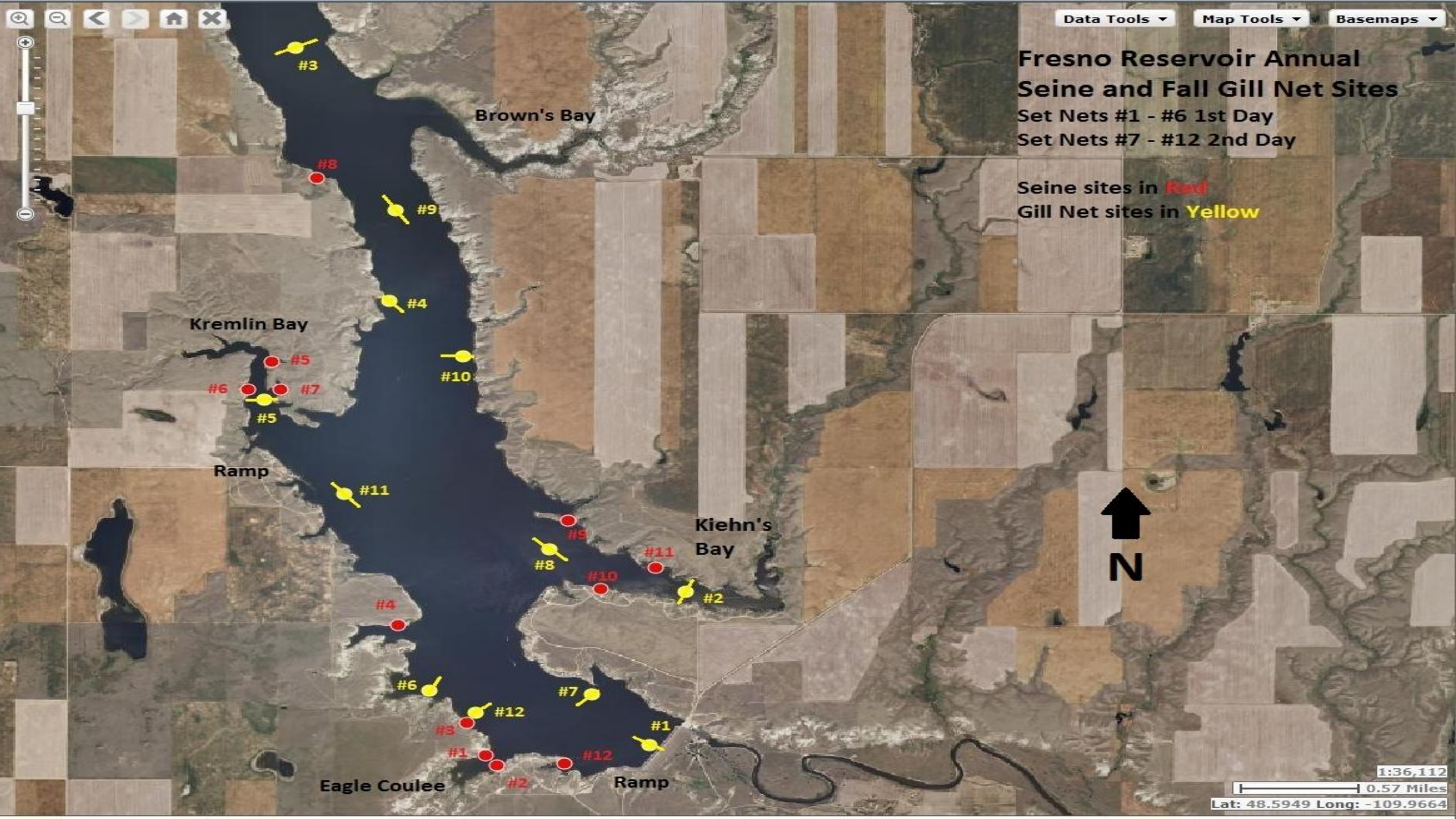
- Adult populations monitored at 12 fixed sites in mid/late September (1987)
 - Gill nets- sinking multi-filament experimental gill nets measuring 125-feet in length and 6-feet deep, consisting of 25-foot panels of $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", and 2" mesh
 - Captured fish are identified by species, measured and weighed. Stomach contents are observed on select northern pike and walleye. Aging structures are collected from select walleye.



Fresno Reservoir Annual Seine and Fall Gill Net Sites

Set Nets #1 - #6 1st Day
Set Nets #7 - #12 2nd Day

Seine sites in **Red**
Gill Net sites in **Yellow**



Historic Projects and Resources

- Habitat enhancement (sporadic)- 1980's-present
 - Primarily focused on yellow perch spawning and rearing
- Entrainment (sporadic)-1980-present
- Water management/recommendations to BOR (fishery benefits)
 - Sent letters in 1987 and 2011
- Water quality/invertebrates (MSU-N)- 1994 and 1996-1997
- Walleye stocking evaluation 2006-2012
 - Adult abundance
 - Growth
 - Hatchery walleye survival/contribution
- Walleye and northern pike forage preference/availability



